Western Archrib™

Structural Wood Systems

Spruce Pine CSP1 Glulam - ANSI

Made to the highest specifications and standards in a regularly inspected environment focused on quality. Western Archrib's glulam products are second to none. From straight glulam beams to complex curved shapes Western Archrib glulam is the ideal product.

Manufacturing Standards

Our production facilities are certified by the APA – Engineered Wood Systems to produce glulam in accordance with:

ANSI – A190.1 American National Standards Institute

As part of our commitment to the environment we offer Chain-of-Custody Certification on products manufactured with FSC® Certified Wood.

FSC® – STD-40-004 Companies supplying and manufacturing FSC® Certified Products

Manufacturing Locations

Edmonton, Alberta, Canada
Boissevain, Manitoba, Canada

Specifications

Certifications:

- APA certified glulam in Spruce Pine (CSP1) to ANSI A190.1

Standard Sizes:

- Width – 3 1/8", 5 1/8", 6 ¾", 8 ½", 10 3/8", 12 3/8", 14 ¼", 15 ¾", 17 ¼", 19 ¼", 21 ¼", 23 ¼", 25 ¼"
- Depth – Minimum 4 ½" up to a maximum of 84" in increments of 1 1/2".
- Length – available in lengths up to 150'
- Custom sizes available upon request

Stress Grade:

- 20f-E/CSP1 Spruce Pine

Profiles/Shapes:

- Beams
- Columns
- Curves
- Arches
- Pitch Tapered Beam
- Round/Elliptical Columns
- Multi Radii Curves
- Tudor Arches
- Shaped profiles
- Bridges
- Long Span Beams/Curves

Appearance Classifications – ANSI A190.1 - 2017

- *Industrial* – sides of member are surfaced true to specified dimensions. Occasional planning misses may occur, filling or patching is not required.
- *Architectural* – sides of member are surfaced smooth to specified dimensions, free from misses, wane and low laminations. Defects over ¾" in diameter are patched or filled.
- *Premium* - sides of member are surfaced smooth to specified dimensions, free from misses, wane and low laminations. Exposed wide face laminations have knot restriction limited to 20% of net face width. Defects over ¾" in diameter are patched or filled.

Design Values:

- See below table for beam and column design values

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CSP [(c)] Design Values for Glulam Stressed Primarily in Bending [(a,b)] with Balanced [(d)] Lay-up:

			20f-E/CSP1	Wet-Use Factor
Bending About X-X Axis	Extreme Fiber in Bending [(e)], Bottom of Beam Positive Bending Moment	F_{bx+} (psi)	2,000	0.8
	Extreme Fiber in Bending[(e)], Top of Beam Negative Bending Moment	F_{bx-} (psi)	2,000	
	Compression Perpendicular to Grain, Tension Face	$F_{c\perp x}$ (psi)	560	0.53
	Compression Perpendicular to Grain, Compression Face	$F_{c\perp x}$ (psi)	560	
	Shear Parallel to Grain [(f)]	F_{vx} (psi)	215[(i)]	0.875
	Modulus of Elasticity [(g)]	$E_{x\ true}$ (10^6 psi)	1.6	0.833
	Modulus of Elasticity [(g)]	$E_{x\ app}$ (10^6 psi)	1.5	
	Modulus of Elasticity [(g)]	$E_{x\ min}$ (10^6 psi)	0.79	
Bending About Y-Y Axis	Extreme Fiber in Bending [(h)]	F_{by} (psi)	1,350	0.8
	Compression Perpendicular to Grain	$F_{c\perp y}$ (psi)	470	0.53
	Shear Parallel to Grain [(f)]	F_{vy} (psi)	190	0.875
	Modulus of Elasticity [(g)]	$E_{y\ true}$ (10^6 psi)	1.5	0.833
	Modulus of Elasticity [(g)]	$E_{y\ app}$ (10^6 psi)	1.4	
	Modulus of Elasticity [(g)]	$E_{y\ min}$ (10^6 psi)	0.74	
Axial Loaded	Tension Parallel to Grain	F_t (psi)	825	0.8
	Compression Parallel to Grain	F_c (psi)	1,750	0.73
	Specific Gravity for Dowel-Type Fastener Design	SG	0.42	See NDS

Table: Values taken from the APA

[(a)] The combinations in this table are intended primarily for members stressed in bending due to loads applied perpendicular to the wide faces of laminations. Design values are tabulated, however for loading both perpendicular and parallel to the wide faces of the laminations.

[(b)] The tabulated design values are for normal duration of loading. For other durations of loading, see the applicable building code. The tabulated design values are for dry conditions of use. For wet conditions of use, multiply the tabulated values by the wet-use factors shown at the bottom of the side of the table.

[(c)] CSP = Canadian Spruce Pine

[(d)] The balance (B) layup is intended primarily for continuous or cantilevered beam applications but may be used in simple-span applications.

[(e)] The values of F_{bx} are based on members 5-1/8 inches in width by 12 inches in depth by 21 feet in length. For members with larger volumes, F_{bx} shall be multiplied by a volume factor, $C_v = (5.125/b)^{1/10}(12/d)^{1/10}(21/L)^{1/10}$, where b is the beam width (in.), d is the beam depth (in.), and L is the beam length between the points of zero moment (ft.).

[(f)] For non-prismatic members, members subject to impact or cyclic loading, or shear design of bending members at connections (NSD 3.4.3.3), the F_{vx} and F_{vy} values shall be multiplied by a factor of 0.72. The tabulated F_{vy} values are for timbers with laminations made from a single piece of lumber across the width or multiple pieces that have been edge bonded. For timber manufactured from multiple piece laminations (across width) that are not edge bonded, value shall be multiplied by 0.4 for members with 5, 7 of 9 laminations or by 0.5 for all other members.

[(g)] The tabulated E values include true E (also known as "shear-free E"), apparent E, and E for beam stability calculation (NDS3.3.3.8). For calculating beam deflections, the tabulated E_{app} values shall be used unless the shear deflection is determined in addition to bending deflection based on the tabulated E_{true}. The axial modulus of elasticity, E_{axial} and $E_{axial\ min}$, shall be equal to the tabulated $E_{y\ true}$ and $E_{y\ min}$ values.

[(h)] The values of F_{by} are based on members 12 inches in depth. For depths less than 12 inches, F_{by} shall be permitted to be increased by multiplying by the size factor, $(12/d)^{1/19}$, where d is the beam depth in inches. When d is less than 3 inches use the size adjustment factor for 3 inches.

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